

OBJECTIVES The relationship between the beneficial effects of pioglitazone in reducing clinical events and plaque inflammatory burden remains unknown. This study aims to determine whether pioglitazone can reduce the number of plaque thrombosis incidences and whether decreasing plaque inflammation is the mechanism by which pioglitazone reduces plaque thromboses.

METHODS Atherosclerotic rabbits were divided into two groups: the atherosclerosis group (n=13) and pioglitazone group (n = 10). The rabbits underwent pharmacological triggering to induce thrombosis. Serum inflammatory markers, FDG uptake, macrophage and neovessel staining detected arterial inflammation. PET/CT scans were performed twice (baseline and post-treatment scans). Plaque area, macrophages, and neovessels were measured and the histological sections were matched with the PET/CT scans. Serum MMP-9 and hsCRP were lower in the pioglitazone group compared to the atherosclerosis group.

RESULTS The SUVmean significantly decreased in the pioglitazone group (0.62 ± 0.21 vs. 0.55 ± 0.19 , $P = 0.008$), but increased in the atherosclerosis group (0.61 ± 0.15 vs. 0.91 ± 0.20 , $P < 0.000$). The incidence rate of plaque rupture, plaque area, macrophage density, and neovessels density was significantly lower in rabbits with pioglitazone than without (15 % vs. 38 %, $P < 0.001$; 18.00 ± 2.30 vs. 27.00 ± 1.60 ; $P < 0.001$; 8.80 ± 3.94 vs. 28.26 ± 2.49 ; $P < 0.001$; 16.50 ± 3.09 vs. 29.00 ± 2.11 ; $P < 0.001$, respectively). Moreover, plaque area and macrophage density were positively correlated with SUV values.

CONCLUSIONS Our study suggests that pioglitazone can reduce the number of plaque thrombosis incidences by decreasing plaque inflammation. ^{18}F -FDG-PET/CT can detect plaque inflammation and assess the effects of antiatherosclerotic drugs.

GW26-e2212

Effect of Atorvastatin on IKK/NF- κ B Pathway of Insulin Resistance in Vascular Endothelial Cells

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OBJECTIVES To investigate the influence of atorvastatin on IKK/NF- κ B Pathway of insulin resistance in vascular endothelial cells.

METHODS Human umbilical vein endothelial cells (HUVECs) were cultured in vitro with high glucose and insulin to establish a model of insulin resistance. Then the cells were treated with $10\mu\text{mol/L}$ of atorvastatin for 24h. Western blot method were used to assay the expression of pIKK, I κ B α , NF- κ B p65 protein. The levels of nitric oxide (NO), endothelin-1 (ET-1), TNF- α , IL-6, ICAM-1 and VCAM-1 was measured by enzyme linked immunosorbent assay (ELISA) kits.

RESULTS HUVECs were cultured with high glucose and insulin, the levels of ET-1, TNF- α , IL-6, ICAM-1 and VCAM-1 were increased, level of NO decreased, p-IKK and NF- κ B p65 expression was upregulated, and I κ B α expression was down-regulated (all $P < 0.05$). Atorvastatin reversed these changes (all $P < 0.05$).

CONCLUSIONS Atorvastatin has the protective effect on insulin resistance induced by high glucose in vascular endothelial cells. The underlying mechanism may be connected with inhibition of IKK/NF- κ B Pathway.

GW26-e0013

The effect and mechanism of Glucagon-like peptide-1 protects against the diabetic cardiomyopathy

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OBJECTIVES To investigate the effect and mechanism of Glucagon-like peptide-1(GLP-1) on diabetic cardiomyopathy.

METHODS All rats were divided into normal group(N), diabetes group(D, STZ and high fat diet to construct diabetic animal model), diabetes treat with insulin group (DI) and diabetes treat with Exenatide (a glucagon-like peptide-1 receptor agonist) group (DA). After modeling 12 weeks, we detected cardiac function by multimedia bio-signal recorder, detected apoptosis rate of cardiomyocyte by TUNEL, detected blood serum adiponectin by ELISA, detected protein expression of PPAR α , NF- κ B by western-blotting.

RESULTS Compare with N group, the cardiac myocyte apoptosis rate of D group was significantly increased, the concentration of adiponectin was significantly decreased($P < 0.05$), the expression of PPAR α was decreased ($P < 0.05$), the expression of NF- κ B were significantly increased, LV -dP/dt

was significantly decreased, LVEDP was significantly increased($P < 0.05$); Compare with D group, the apoptosis rate of DA group cardiac myocyte was significantly decreased($P < 0.05$), the concentration of adiponectin was significantly increased($P < 0.05$), the expression of PPAR α and LV-dP/dt were significantly increased ($P < 0.05$), LVEDP, the expression of NF- κ B were decreased ($P < 0.05$). Compare with DA group, although the glucose had no difference ($P > 0.05$), the cardiac myocyte apoptosis rate and LVEDP of DI group were significantly increased($P < 0.05$), the expression of PPAR α and LV-dP/dt were decreased ($P < 0.05$), the expression of NF- κ B was significantly increased, the concentration of adiponectin was significantly decreased($P < 0.05$).

CONCLUSIONS STZ plus high fat diet can induce diabetes, hypo-adiponectin and lower expression of PPAR α , which was contribute to diabetic cardiomyocyte apoptosis and cardiomyopathy. After treated with Exenatide, the concentration of plasma adiponectin was significantly higher, the expression of PPAR α was significantly increased, the expression of NF- κ B, and cardiac myocyte apoptosis rate were decreased, cardiac function of diabetic cardiomyopathy rats was improved, and this effect was independent with glucose.

GW26-e0749

The effects of Local Cardiac Denervation on Cardiac Nerve Sprouting and Ventricular Electrophysiology after Chronic Myocardial Infarction in Dogs

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OBJECTIVES The aim of this study was to investigate the impact of the coronary sinus (CS) and great cardiac vein (GCV) peripheral nerves ablation on cardiac nerve sprouting and ventricular electrophysiology after chronic MI in dogs.

METHODS Twenty-one anesthetized dogs were randomly divided into the sham-operation (n = 5), MI (n = 8) and MI- denervation groups (n = 8), respectively. The dogs were ligated with left anterior descending branch for MI induction, the CS and GCV peripheral nerves were ablated by radiofrequency. 4 week after ablation or the generation of MI, the incidence and duration of ventricular arrhythmias (VA) were monitored for 1h during left stellate ganglion (LSG) stimulation, and programmed electrical stimulation was performed to measure the ventricular effective refractory period (ERP) and to induce ventricular fibrillation threshold (VFT) in all animals. At the end of experiment, the density of tyrosine hydroxylase (TH) and growth associated protein 43(GAP43)-positive sympathetic nerve fibers as well as infarct size were also detected. Systemic arterial pressure and heart rate were monitored during experiment.

RESULTS 4 week after ablation or the generation of MI, two dogs in only MI group died; the incidence and duration of VA in MI-ablation group were significantly lower than that MI-placebo group during LSG stimulation ($P < 0.05$), and sustained ventricular tachycardia was induced in MI group. The infarcted border zone ERP and VFT in MI-denervation groups were significantly improved when compared with MI group. Furthermore, the TH and GAP43-positive sympathetic nerve fibers in the cardiac base and infarcted border zone were also decreased ($P < 0.05$). Systemic arterial pressure and heart rate as well as infarct size were displayed a marked difference when compared with MI group ($P > 0.05$).

CONCLUSIONS Using the canine MI model, we showed that local ablation of CS and GCV peripheral nerves improves cardiac nerve sprouting and ventricular electrophysiology after chronic MI, and reduces the occurrence of VA with no obvious effects on heart rate, systemic arterial pressure and infarct size. Therefore, local cardiac denervation may protect from ventricular arrhythmias complicating chronic MI.

GW26-e0757

Inhibitory Effects of Luofengning-0 Formula on the Growth and Proliferation of Human Coronary Artery Smooth Muscle Cells and Endothelial Cells in Vitro: An Exploration of a New Type of Complex Monomer of Chinese Herbs Eluting Stents

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OBJECTIVES To prove the effectiveness and feasibility of Luofengning-0 complexes and provide the experimental data for the prevention of restenosis, we investigated the inhibitory effects of different ratio